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10/776,128	02/11/2004	George Celniker	44040-10001	3127

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EXAMINER

WANG, JIN CHENG

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,128

Applicant(s)

CELNIKER, GEORGE

Examiner

Jin-Cheng Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 7 is objected to because of the following informalities: on line 6 of the claim 7, "said curve" should be "said surface". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 or 9 recites the limitation "the shapes" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim because claim 7 only recites "a shape".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Konno et al. U.S. Patent No. 5,883,631 (hereinafter Konno).

Claim 5:

Konno teaches a method for fixing problems in a CAD database having faces, edges and vertices, comprising:

Adjusting the shape of an edge (*adjusting/twisting the shape of the surface and adjusting the boundary curve E0 defined by a NURB curve by adjusting the control points lying on the boundary curve or guide curve; column 14, lines 49-67 and column 15, lines 1-8 and column 15, lines 32-67 and column 16, lines 1-5 and adjusting the shape of the surface by using the derivative vectors lying at end points of the guide curve; column 16, lines 25-53 and controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12*) to eliminate or reduce to a specified tolerance (*joining the boundary curves of two surfaces with G1 continuity to ensure cross-tangent continuity and thus to eliminate the gap errors; column 11, lines 6-50*) the gap errors between said edge (a boundary curve) and a face (one of the two surfaces F1 and F2) connected to said edge and the gap errors between said edge and a plurality of vertices (controlling end points of the edge curves or the control points of the boundary curves; column 15, lines 32-50) connected to said edge (*controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12*).

Claim 6:

Konno further discloses the shape analytic data for creating mechanical drawings and generating a free-form surface including generating NURB curves and vectors from analytic shape data of the geometric model (column 5, lines 4-25).

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Claim 5:

Konno teaches a method for fixing problems in a CAD database having curves and surfaces, comprising:

Modifying a curve by finding a modified curve shape that interpolates a set of point locations (*adjusting/twisting the shape of the surface and adjusting the boundary curve E0 defined by a NURB curve by adjusting the control points lying on the boundary curve or guide curve; column 14, lines 49-67 and column 15, lines 1-8 and column 15, lines 32-67 and column 16, lines 1-5 and adjusting the shape of the surface by suing the derivative vectors lying at end points of the guide curve; column 16, lines 25-53 and controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12*) and minimizes the gap errors (*joining the boundary curves of two surfaces with G1 continuity to ensure cross-tangent continuity and thus to eliminate the gap errors; column 11, lines 6-50*) between said curve (a boundary curve) and a surface (one of the two surfaces F1 and F2) connected to said curve while minimizing deviations (*e.g., using the local shape modifications; column 17*) from the original shape face of said surface where the gap errors are expressed as constraints (*e.g., column 10, lines 1-4*) that must be satisfied or minimized (*controlling end points of the edge curves or the control points of the boundary curves; column 15, lines 32-50 and controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12 to minimize the error*).

Claims 8-9:

Konno further discloses the shapes represented as B-splines and NURBs (column 18, lines 45-51 for surfaces and column 15, lines 32-40 for NURBs curve and column 11, lines 35-38 for B-curves).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. U.S. Patent No. 5,883,631 (hereinafter Konno) in view of Venkataraman et al. U.S. Patent No. 6,760,038 (hereinafter Venkataraman).

RE Claims 1-3 and 10:

Konno teaches a method for fixing problems in a CAD database having faces, edges and vertices, comprising:

Adjusting the shape of at least one face (*adjusting/twisting the shape of the surface and adjusting the boundary curve E0 defined by a NURB curve by adjusting the control points lying on the boundary curve or guide curve; column 14, lines 49-67 and column 15, lines 1-8 and column 15, lines 32-67 and column 16, lines 1-5 and adjusting the shape of the surface by using the derivative vectors lying at end points of the guide curve; column 16, lines 25-53 and controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12*), the shapes of each edge connected to said face, and positions of each vertex (e.g., control points) connected to said face to reduce to a specified tolerance the gap

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errors, cross-tangency tolerances associated with said face (*joining the boundary curves of two surfaces with G1 continuity to ensure cross-tangent continuity and thus to eliminate the gap errors; column 11, lines 6-50 and the errors are associated with one of the two surfaces F1 and F2 and the errors can be minimized by using the local shape modifications; column 17 and controlling end points of the edge curves or the control points of the boundary curves; column 15, lines 32-50 and controlling an internal shape of a surface by moving an arbitrarily specified point on the surface; column 17, lines 5-12 to minimize the error*).

However, Konno is silent to the claim limitation of “cross-curvature tolerance”.

Venkataraman discloses Spring edges in which the cross curvature are minimized to identify a blend face that is adjacent to the spring edge (Venkataraman column 6, lines 18-42).

It would have been obvious to have incorporated Venkataraman’s cross curvature tolerances into Konno’s method because Konno teaches NURB boundary curves of degree 3 or 4 (column 8, lines 1-7) and the bicubic NURB surfaces and the two surfaces are joined with G1 continuity and thereby a free-form surface of degree 4 can be generated by joining the two surfaces with G1 continuity with the distortion of the shape being eliminated by using the NGB patch (Konno column 16, lines 38-46), therefore reducing the curvature tolerances associated with the two adjoining faces.

One of the ordinary skill in the art would have used the cross-curvature tolerances because the distortion of the shape can be eliminated (Konno column 16, lines 38-46) and smooth transitions between surfaces are ensured (Venkataraman column 6, lines 18-42).

Claim 4:

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Konno further discloses the shape analytic data for creating mechanical drawings and generating a free-form surface including generating NURB curves and vectors from analytic shape data of the geometric model (column 5, lines 4-25).

Claims 11-12:

Konno further discloses the shapes represented as B-splines and NURBs (column 18, lines 45-51 for surfaces and column 15, lines 32-40 for NURBs curve and column 11, lines 35-38 for B-curves).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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jcw

A handwritten signature in black ink, appearing to be 'MR' followed by a stylized flourish.

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600